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Measuring Spin Correlations in Top Quark Pairs at D0

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Recently two measurements of the correlation between the spin of the top quark and antiquark have been performed at D0. In the {ttbar -> W+bW-bbar ->l+nubl-nub} final states we select about 300 ttbar pairs, corresponding to an integrated luminosity of 5.4 fb^-1. In the first analysis the correlation is extracted from the angles of the two leptons in the t and tbar rest frames, yielding a correlation strength C= 0.10^{+0.45}_{-0.45}, in agreement with the NLO QCD prediction within two standard deviations. Using a matrix element based approach we significantly improve the sensitivity in the second measurement. This allows us to exclude the no correlation hypothesis at the 97.7% C.L.

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